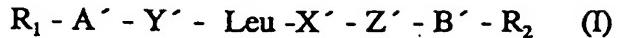


We Claim:

1. A compound having the formula



in which

5 X' means any group or amino acid imparting to the compound of formula (I) the ability to bind to the KLVFF-sequence in amyloid β peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

10 A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -carboxygroup or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid; R₁ is H or -CO-R₃ bonded at the α -amino group of A'; R₂ is H, -OR₄ or NR₅R₆, all bound to the α -carboxyl group of the α -carboxyterminal of B';

R₃ is a straight or branched carbon chain of 1-4 carbon atoms;

R₄ is a straight or branched carbon chain of 1-4 carbon atoms;

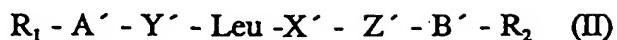
R₅ and R₆ independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are -(CH₂)_n-, where n is 4-5;

R₁ and R₂ together can form a hydrocarbon ring or heterocyclic ring; and

all the α -amino acids can be either D- or L-isomers; with the proviso that (I) is not Lys-Leu-Val-Phe-Phe, which exhibits an ability to inhibit polymerization of amyloid β peptide.

2. A compound according to Claim 1, wherein all the amino acids are D-isomers.
3. A compound according to Claim 1, wherein Y' is Lys.
4. A compound according to Claim 2, wherein Y' is Lys.
5. A compound according to Claim 3, wherein Y' is Lys and Z' is Phe.
6. A compound according to Claim 1, wherein Y' is Phe.
7. A compound according to Claim 2, wherein Y' is Phe.
8. A compound according to Claim 1, wherein X' is Val-Val.
9. A compound according to Claim 1, wherein R₁ is acetyl.
10. A compound according to Claim 1, wherein R₁ is H and/or R₂ is H.

11. Use of a compound of formula



in which

X' means any group or amino acid imparting to the compound of formula (II) the ability to bind to the KLVFF-sequence in the amyloid β peptide, or two amino acids imparting the same ability, but with the proviso that one is not proline;

Y' means any amino acid;

Z' means any non-acidic amino acid;

A' means a direct bond or an α -amino acid bonded at the carboxyl terminal of the α -amino acid bonded at the carboxyl terminal of the α -carboxygroup or a di-, tri-, tetra- or pentapeptide bonded at the carboxyl terminal of the α -carboxy group;

B' means a direct bond or an α -amino acid bonded at the α -nitrogen or a di-, tri-, tetra- or pentapeptide bonded at the α -nitrogen of the N-terminal α -amino acid;

R₁ is H or -CO-R₃ bonded at the α -amino group of A';

R₂ is H, -OR₄ or NR₅R₆, all bound to the α -carboxyl group of the α -carboxyterminal of B';

R₃ is a straight or branched carbon chain of 1-4 carbon atoms;

R₄ is a straight or branched carbon chain of 1-4 carbon atoms;

R₅ and R₆ independently are H, alkyl, cycloalkyl, aryl or substituted aryl or together are -(CH₂)_n-, where n is 4-5;

R₁ and R₂ together can form a hydrocarbon ring or heterocyclic ring;

all the α -amino acids can be either D- or L-isomers;

for inhibition of polymerization of amyloid β peptide-ligands for inhibition of polymerization of amyloid β peptide, as a tool for the identification of other organic compounds with similar functional properties or as a ligand in PET (positron emission tomography).

12. Use according to Claim 11, wherein all the amino acids of the compound are D-isomers.
13. Use according to Claim 9, wherein Y' is Lys.
14. Use according to Claim 13, wherein Y' is Lys and Z' is Phe.
15. Use according to Claim 11, wherein Y' is Phe.
16. Use according to Claim 11, wherein X' is Val-Val.
17. Use according to Claim 11, wherein R₁ is acetyl.
18. Use according to Claim 11, wherein R₁ is H and/or R₂ is H.
19. A compound according to Claim 1 for use as a medicament.

20. Use of a compound according to Claim 1 for the manufacture of a medicament for the treatment of prevention of amyloidosis.
21. Use of a compound according to Claim 1 for the manufacture of a medicament for the treatment of prevention of Alzheimer disease associated with amyloidosis.
22. Use of a compound according to Claim 1 for the manufacture of a medicament for the treatment or prevention of demens in patients with Down's syndrome.
23. Use of a compound according to Claim 1 for the manufacture of a medicament for the treatment or prevention of Hereditary cerebral hemorrhage with amyloidosis (Dutch type).
24. Use of a compound according to Claim 1 for the manufacture of a medicament for the prevention of fibril formation of human amyloid protein.
25. A composition comprising a compound according to Claim 1 and optionally a ligand capable of binding or interacting with the compound according to formula I and a carrier.
26. A composition according to Claim 25, which is adapted for injection or oral administration.